Chapter 2: Region-wide Pacific Coastal Salmon Recovery Fund Performance

The PCSRF project accomplishments, outputs, and preliminary outcomes contribute to the overall region-wide goal of Pacific salmon sustainability. These measures are components of the Framework described in Chapter 1. They provide a structured means to assess overall PCSRF performance and progress toward long-term program objectives such as recovery of ESA-listed salmon populations. The intricate and variable life cycle of salmon and the nature of habitat requirements and restoration work mean that end results from projects often require several years to become evident. The information presented in this chapter highlights the funded and completed projects as of November 30, 2006.

Performance Progress

The PCSRF progress toward short-term, mid-term, and long-term outcomes and goals identified in the Framework is measured and reported through the region-wide output and outcome indicators displayed in Exhibit 2-1. The outputs of projects ongoing and completed serve as a first level indicator of state and tribal efforts toward outcomes.

Instream, riparian, and upland habitat projects provide erosion control, enhance instream flow and streambed conditions, and improve water quality and quantity in watersheds inhabited by salmon. Restoration plays a unique role in salmon migration, reproduction, and juvenile rearing within the watersheds. Estuarine and wetland restoration projects protect and improve habitat that is important for migration, rearing, and transitioning into the ocean environment. Cumulatively, through riparian, estuarine, wetland, and upland projects over 419,000 acres of habitat have been treated and restored, with over 9,100 acres of wetland and estuarine habitat created. Additionally, more than 5,800 stream miles were treated and restored. Since program inception over 104,000 acres of habitat have been protected through acquisition, easement, or lease. In total, the PCSRF has improved nearly 532,000 acres of habitat essential to various stages of the salmon and steelhead life cycle. Based on analysis of projects within recovery domains, approximately 76 percent of habitat project activities are addressing habitat factors that are limiting salmon recovery.

The proliferation of stream and river barriers over the past century has been largely detrimental to salmon. They impede salmon from reaching spawning habitat, interrupt their migration, and inhibit completion of the various stages of the intricate life cycle of salmon. Removing these barriers has been one of the focus areas for improving salmon status and condition in the Pacific Coast region. A large portion of the PCSRF projects concentrate on increasing fish access to previously unavailable habitat and improving overall watershed productivity for salmon through the removal of stream barriers and replacement of ineffective culverts. Since program inception, more than 5,000 additional stream miles have been made accessible to fish, with over 2,500 barriers to salmon habitat removed.

Exhibit 2-1: Region-wide Performance Reporting Results

Outputs	Region-Wide Performance Indicators	Short-Term Outcomes (<5 years)	Mid-Term Outcomes (5-15 years)	Long-Term Outcomes (>15 years)
Instream habitat projects	**1,570** stream miles treated	**Enhanced availability and quality of habitat** *More than 532,000 acres of habitat and nearly 11,000 stream miles enhanced, accessible, or available*	**Improved status of ESA-listed salmon** *Improved status of 16 of 19* ESA-listed salmon ESUs/DPSs*	**Overall sustainability of Pacific salmon**
Wetland habitat projects	**7,541** acres created / **14,703** acres treated			
Estuarine habitat projects	**1,579** acres created / **2,811** acres treated			
Land acquisition projects	**104,514** acres acquired/protected / **380** stream bank miles acquired or protected			
Riparian habitat projects	**4,291** stream miles treated / **21,675** acres treated	**Improved management practices** *All harvests managed to conserve wild populations*		
Upland habitat projects	**379,842** acres treated			
Fish passage projects	**2,595** barriers removed / **5,003** stream miles opened / **583** fish screens installed		**Maintained healthy salmon populations** *See Exhibits 2-2 and 2-3,*	
Hatchery/enhancement projects	More than **300 million** hatchery fish marked for management strategies	**Habitat limiting factors addressed for ESA-listed salmon** *76% of all habitat projects are addressing major habitat limiting factors*		
Watershed planning and assessment projects	**26 ESUs (all)** have identified factors limiting recovery			
Research, monitoring, and evaluation projects	**48,769** miles of streams monitored / **287** assessments completed			

* Where trend data are available for 12 years or longer.

Watershed and species assessments play a key role in understanding factors limiting salmon recovery in the Pacific Coast region. Through watershed and species assessments, NMFS has identified factors limiting recovery for all 26 ESA-listed ESUs/DPSs. These assessments identify habitat conditions and needs on a population basis within watersheds. Examples of identified habitat conditions affecting recovery include poor water quality and instream conditions, and inadequate canopy cover and vegetation along stream banks.

Fish marking programs support efforts to identify stock and estimate fish abundance and allow for selective fisheries for hatchery fish. Since FY 2000, hundreds of millions of hatchery fish have been marked to improve harvest and hatchery management practices throughout the region. Monitoring is an important activity in determining progress toward the goal of sustainable salmon popula-tions. Monitoring the abundance of listed threatened and endangered salmon and steelhead species is essential to species recovery. The salmon ESU and steelhead DPS abundance numbers presented in Chapter 3 serve as a general indicator of the mid-term PCSRF program goal to improve the status of salmon. Collectively, they are showing region-wide improvements in listed populations. Of the 26 ESUs/DPSs listed as endangered or threatened under the ESA, 19 have more than 12 years of recent data that can be used by the Technical Recovery Teams to assess trends. Of these, 16 show stable or increasing population trends. Monitoring of non-listed species is equally important to assess overall salmon population sustainability and to identify when actions may be needed to prevent listing. Exhibits 2-2 and 2-3 provide examples of the activities and types of data that have been collected by monitoring programs for non-listed species.

The Pacific Coast region-wide summary measures discussed above provide an overview of the current broad-scale progress toward improved salmon habitat and sustainable salmon populations. Exhibit 2-4 shows the distribution of habitat projects throughout the Pacific Coast region. The results of these efforts, as reflected by salmon returns, often take many years. The following chapters of this Report discuss salmon recovery at the recovery domain level and specific state and tribal efforts toward the outlined program objectives.

Exhibit 2-2: Trends in Non-ESA-Listed Salmon Populations in Oregon

The Oregon Department of Fish and Wildlife (ODFW) monitors and manages non-listed fish species throughout the State of Oregon as part of the Native Fish Conservation Policy (Oregon Administrative Rule 635-007-0507). Various non-ESA-listed Species Management Units (SMUs) are monitored. The ODFW chart below highlights the abundance for Wild Rogue Coho.

Rogue Coho SMU: Trends in Wild Rogue Coho, 1980–2005
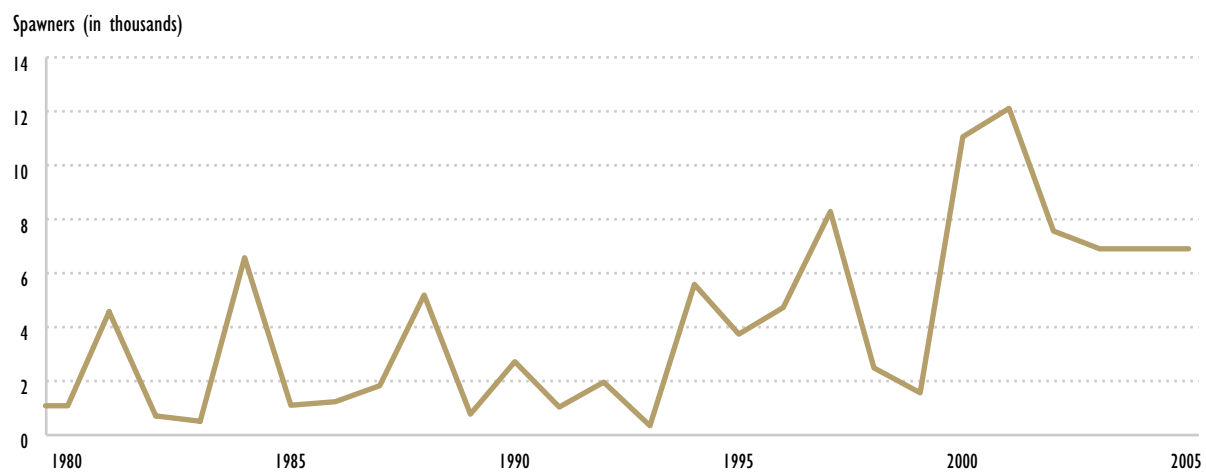
Spawners (in thousands)

Exhibit 2-3: Trends in Non-ESA-Listed Klamath River Basin Fall-Run Chinook in California

For nearly 20 years California has collected data on hatchery returns, natural spawners, and angler and Indian net harvests to determine abundance of Klamath River basin fall Chinook salmon. The graph below shows run-size estimates for Klamath River basin fall Chinook from 1978-2005.

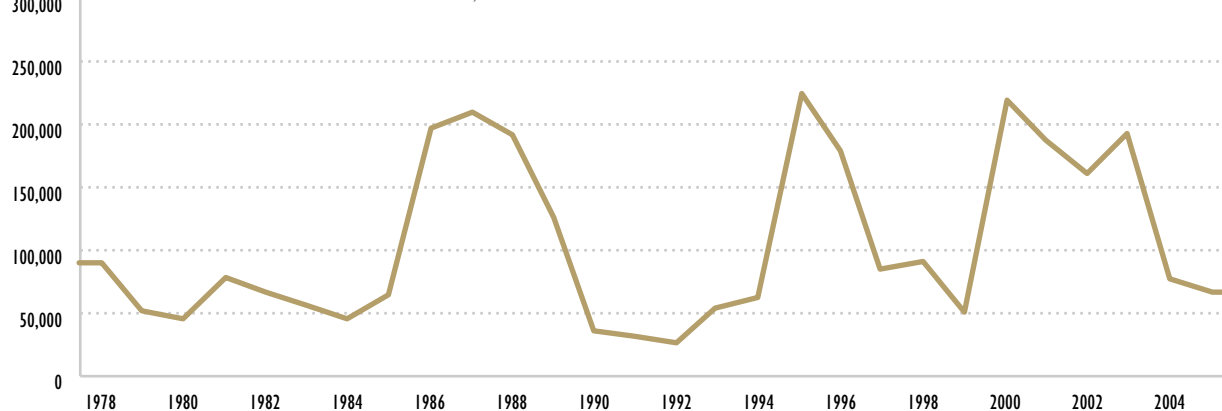Klamath River Basin Fall-Run Chinook Salmon Run-size Estimates, 1978–2005

Exhibit 2-4: PCSRF Region-Wide Major Habitat Project Types

Treatment Type
- Instream
- Restoration
- Riparian
- Upland
- Water Quality

Treatment Type
- Instream
- Instream, Upland, Restoration
- Instream, Upland, Riparian
- Instream, Riparian, Water Quality